

CLAIMS

I claim:

1. A device for processing liquid, comprising:
 - a main body having a valve housing chamber with a main inlet port and a main outlet port along a non-horizontal axis;
 - a liquid inlet processing port and a liquid outlet processing port;
 - a rotatable valve mounted within the valve housing chamber moving from a position that directs a flow of liquid from the main inlet port to the main outlet port to a position that directs a flow of liquid from the main inlet port to the inlet processing port and directs a flow from the outlet processing port to the main outlet port; and
 - a processing chamber along a vertical axis, receiving a flow from the inlet processing port, processing the liquid, and directing the flow into the outlet processing port.
2. The device of claim 1, further comprises a liquid inlet processing channel for receiving a flow from the inlet processing port and directing the flow from the valve housing into a processing chamber inlet port and a liquid outlet processing channel for receiving a flow from a processing chamber outlet port and directing a flow to the outlet processing port, and
 - wherein the processing chamber receives a flow from the processing chamber inlet port, processes the liquid, and directs the flow into the chamber processing outlet port.

3. The device of claim 1, wherein the main inlet port and the main outlet port are along a vertical axis.

4. The device of claim 1, wherein the processing chamber is removably connected to the inlet and outlet processing ports.

5. The device of claim 1, wherein a pipe is connected to one of the main inlet ports and the outlet port, and a stabilizer connects the processing chamber to the pipe.

6. The device of claim 5, wherein the stabilizer clips around the pipe and supports the sides of the processing chamber.

7. The device of claim 6, wherein a fastener secures the stabilizer around the pipe.

8. The device of claim 2, wherein the inlet processing channel and the outlet processing channel are connected to the processing chamber and the inlet processing channel and outlet processing channel are removably connected to the main body.

9. The device of claim 1, wherein the processing chamber is one of a filter, a sampling chamber, and a chemical feeder.

10. The device of claim 1, further comprising a lever that rotates the rotatable valve wherein the lever is parallel with the non-horizontal axis when a flow is directed from the main inlet to the main outlet and the lever is perpendicular with the non-horizontal axis when a flow is directed from the main inlet port to the inlet processing port.

11. A device for processing liquid, comprising:

- a main body having a valve housing chamber with a main inlet port and a main outlet port parallel with an axis aligned with gravity;
- a liquid inlet processing port and a liquid outlet processing port perpendicular to the gravity axis;
- a rotatable valve mounted within the valve housing chamber moving from a position that directs a flow of liquid from the main inlet port to the main outlet port to a position that directs a flow parallel with the gravity axis from the main inlet port to a flow perpendicular with the gravity axis out the inlet processing port and directs a flow perpendicular with the gravity axis from the outlet processing port to a flow parallel with the gravity axis out the main outlet port;
- a liquid inlet processing channel for receiving a flow from the inlet processing port and directing a flow perpendicular with the gravity axis from the inlet processing port to a flow parallel to the gravity axis into a processing chamber inlet port and a liquid outlet processing channel for receiving a flow parallel to the gravity axis from a processing chamber outlet port and directing a flow perpendicular to the gravity axis to the outlet processing port; and

a processing chamber receiving a flow parallel to the gravity axis from the processing chamber inlet port, processing the liquid in a direction parallel to the gravity axis, and directing a flow parallel with the gravity axis into the chamber outlet port.

12. The device of claim 11, wherein the processing chamber is removably connected to the inlet and outlet processing channels.

13. The device of claim 11, wherein a pipe is connected to one of the main inlet ports and the main outlet port, and a stabilizer connects the processing chamber to the pipe.

14. The device of claim 13, wherein the stabilizer clips around the pipe and supports the sides of the processing chamber.

15. The device of claim 14, wherein a fastener secures the stabilizer around the pipe.

16. The device of claim 11, wherein the inlet processing channel and outlet processing channel are connected to the processing chamber and the inlet processing channel and the outlet processing channel are removably connected to the main body.

17. The device of claim 11, wherein the processing chamber is one of a filter, a sampling chamber, and a chemical feeder.

18. The device of claim 11, further comprising a lever that rotates the rotatable valve wherein the lever is parallel with the gravity axis when a flow is directed from the main inlet to the main outlet and lever is perpendicular with the gravity axis when a flow is directed from the main inlet port to the inlet processing port.

19. A device for processing liquid, comprising:

a main body having a valve housing chamber with a main inlet port and a main outlet port along a non-horizontal axis;

a liquid inlet processing port and a liquid outlet processing port;

a rotatable valve mounted within the valve housing chamber capable of moving from a position that directs a flow of liquid from the main inlet port to the main outlet port to a position that directs a flow of liquid from the main inlet port to the inlet processing port and directs a flow from the outlet processing port to the main outlet port;

a liquid inlet processing channel for receiving a flow from the inlet processing port and directing a flow from the valve housing into a processing chamber inlet port and a outlet processing channel for receiving a flow from a processing chamber outlet port and directing a flow to the outlet processing port wherein the inlet and outlet processing channels are rotatably connected to the main body allowing a processing chamber to hang along a vertical axis; and

the processing chamber receiving a flow from the processing chamber inlet port, processing the liquid, and directing a flow into the processing chamber outlet port.

20. The device of claim 19, wherein the main inlet port and the main outlet port are along a vertical axis.

21. The device of claim 19, wherein the processing chamber is removably connected to the inlet processing channel and the outlet processing channel.

22. The device of claim 19, wherein a pipe is connected to one of the main inlet port and the main outlet port and a stabilizer connects the processing chamber to the pipe.

23. The device of claim 22, wherein the stabilizer clips around the pipe and supports the sides of the processing chamber.

24. The device of claim 23, wherein a fastener secures the stabilizer around the pipe.

25. The device of claim 19, wherein the inlet processing channel and the outlet processing channel are connected to the processing chamber and the inlet processing channel and the outlet processing channel are removably connected to the main body.

26. The device of claim 19, wherein the processing chamber is one of a filter, a sampling chamber, and a chemical feeder.

27. A method of processing liquid, comprising the steps of:

receiving a flow of liquid parallel with an axis aligned with gravity;

directing the flow from a main inlet port to a main outlet port with the flow being parallel with the gravity axis and preventing the flow from entering an inlet processing port and an outlet processing port when a valve is in a first position;

directing the flow from the main inlet port to the inlet processing port, directing the flow from the outlet processing port to the main outlet port, and preventing the flow from directly flowing from the main inlet port to the main outlet port when the valve is in a second position; and

processing the flow comprising: receiving the flow from the inlet processing port, processing the flow along a vertical axis, and directing the flow into the outlet processing port when the valve is in the second position.

28. The method of claim 27, wherein the processing step further involves the steps of filtering, sampling, and dispersing particles in the flow.

29. A device for processing liquid, comprising:

means for housing having a main inlet port and a main outlet port along a non-horizontal axis;

a liquid inlet processing port and a liquid outlet processing port;

means for controlling liquid flow mounted within the means for housing, the means for controlling liquid flow being capable of moving from a position allowing the liquid to flow from the main inlet port to the main outlet port to a position that directs

the flow from the main inlet port to the inlet processing port and directs a flow from the outlet processing port to the main outlet port; and

means for processing located along a vertical axis, receiving the flow from the inlet processing port, processing the liquid, and directing the flow into the outlet processing port.

30. The device of claim 29, wherein the main inlet port and the main outlet port are along a vertical axis.

31. The device of claim 29, wherein the means for processing is removably connected to the inlet and outlet processing ports.

32. The device of claim 29, wherein a pipe is connected to one of the main inlet ports and the main outlet port, and a connection means connects the means for processing to the pipe.

33. The device of claim 32, wherein the connection means clips around the pipe and supports the sides of the means for processing.

34. The device of claim 33, wherein a fastening means secures the connection means around the pipe.

35. The device of claim 29, wherein the inlet processing channel and the outlet

processing channel are connected to the means for processing and the inlet processing channel and outlet processing channel are removably connected to the means for housing.

36. The device of claim 29, wherein the means for processing is one of a filter, a sampling chamber, and a chemical feeder.

37. The device of claim 29, further comprising a lever that rotates the means for controlling liquid flow wherein the lever is parallel with the non-horizontal axis when a flow is directed from the main inlet to the main outlet and the lever is perpendicular with the non-horizontal axis when a flow is directed from the main inlet port to the inlet processing port.